Drive Electric Minnesota
driveelectricmn.org

Drive Electric Minnesota is a partnership of local and state government, our largest utility, private business and nonprofit entities working in collaboration to bring electric vehicles (EVs) and plug-in charging infrastructure to Minnesota. Our goals include encouraging the deployment of EVs and the establishment of a charging station infrastructure through public-private partnerships, financial incentives, education, technical support and public policy.

We plan to install about 30 plug-in charging stations throughout the metro area in ramps, flat lots and on-street locations. Four to six of these publically available charging stations will be solar powered. Many of these plug-in charging stations will be located in the Energy Innovation Corridor adjacent to the light rail line that will connect the cities of Saint Paul and Minneapolis.

Why drive electric vehicles?

EVs generate no air pollution from the tailpipe, cost much less to run and can be powered through wind or solar generated electricity.

More than a third of all Minnesota's air pollutant emissions come from cars and trucks. EVs have zero emissions from the tailpipe and if the electricity to charge an EV comes from 100 percent solar or wind power, there is no air pollution created during the generation of the electricity or during the EV's use. EVs can be part of solving some of our air pollution problems.

- **Efficient:** An electric motor is more efficient than a combustion engine, and therefore less expensive to operate. Typically it costs 2 to 3 cents per mile for electricity to power an EV.
- **Simple:** Electric motors have fewer moving parts than a gasoline engine, which means less maintenance. For example, EVs do not have transmissions or require oil and coolant changes.
- **Quiet:** An electric motor is very quiet when running and silent when not in motion.
- **Locally-generated renewable energy:** Electricity can be produced in many ways, some of them right at your home. EV owners who charge EV batteries with a household solar system or who participate in a voluntary green energy program, like Windsource®, drive an emissions-free vehicle.
- **Energy Independence:** EVs reduce our dependence on imported fossil fuels.

What about the extra purchase cost of an EV?

Even though the purchase price of an EV is currently higher than for an equivalent gas-powered vehicle, fuel cost savings will make up some of the cost difference. In addition, the price of EVs is anticipated to significantly decrease as more are produced.

For the Transit Connect, the fuel costs over six years for the gasoline powered model are estimated to be almost $10,000 vs. $2,600 in electricity costs to power the EV model.[1] Public health benefits from improved urban air quality due to the migration toward use of EVs will contribute to savings related to healthcare expenditures.

[1] Based upon 50 miles per day for 249 days per year at 23 mpg with gasoline price of $3.00 gallon vs. 28 kWh charge for 80 miles at $0.10 kWh.

Is there potential for green jobs development related to EVs?

Green jobs will be created through the installation and maintenance of plug-in charging stations.

Site review, installation and maintenance of charging stations in public, private and residential settings will provide work for electricians and other technicians, increasing the demand for these skills and job opportunities. Charging station installation and maintenance training will be provided at local technical and community colleges.

What happens to the used electric car batteries?

Batteries that can no longer be used in EVs can be used in back-up power systems for buildings, then eventually sold to recycling facilities.

The lithium ion batteries that are no longer usable in EVs are likely to be used in uninterrupted power systems (UPS) to provide electrical power to buildings during power outages. These batteries will still have about 70 percent usable capacity after their lifespan in vehicles. Once the batteries are no longer useable even for secondary purposes, they can be recycled through several lithium ion battery recycling facilities.

Will the EVs and charging stations still work in our Minnesota cold weather?

A fully charged EV that normally goes 100 miles may only go 60 miles in extremely cold weather. The plug-in charging stations are rated for use down to 22 degrees below zero.

There is a decrease in the battery performance of EVs in extremely cold weather so they will typically need to be charged more frequently. A number of the EV manufacturers are building in battery warmers to increase performance during cold weather. The Coulomb Charge Point plug-in chargers, which are being installed at many of the public stations in the metro area, are rated to operate in temperature range of -22°F to 122°F.

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